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NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 02/03/2010

RAZMIK HAKOBYAN
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Azatutyan St. 12
Yerevan, 275037
ARMENIA

EXAMINER

HUYNH, NAM TRUNG

ART UNIT

PAPER NUMBER

2617

DATE MAILED: 02/03/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/755,716

01/12/2004

Razmik Hakobyan

1891.2002-001

9774

TITLE OF INVENTION: COMMUNICATION SYSTEM TRANSCEIVER

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	05/03/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

7590 02/03/2010

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ARMENIA

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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10/755,716	01/12/2004	Razmik Hakobyan	1891.2002-001	9774

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	05/03/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
HUYNH, NAM TRUNG	2617	455-063100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Date _____

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**

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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 863 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 863 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No.

10/755,716

Examiner

NAM HUYNH

Applicant(s)

HAKOBYAN ET AL.

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed 11/3/09.
2. ☒ The allowed claim(s) is/are 7,10 and 11.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

/George Eng/
Supervisory Patent Examiner, Art Unit 2617

DETAILED ACTION

Response to Amendment

This office action is in response to amendment filed on 11/3/09. Of the previously presented claims 7, 10, and 11; claims 7, 10, and 11 have been amended.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment to the claims was given in a telephone interview with Razmik Hakobyan on 12/16/09 and for the abstract/title on 1/14/10.

Title

Communication System Transceiver **Method for Transmitting and Receiving Data with Low BER in Presence of Interference Between Subscriber Stations**

Abstract

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Provided is a method for transmitting and receiving data with low BER in presence of interference between subscriber stations. In the method each subscriber station is assigned to its own Unique Address Code (UAC) and to its own Encoded Information Group (EIG). A receiving device first attempts to detect the UAC of a transmitter device by comparing the incoming signal with the receiver's internal Reference Signal (RS). The Number of Continuous Clock Rate Periods (NCCRP) of the RS, which continuously matches with the incoming signal acts as the criteria for UAC detection. When the measured value of the NCCRP surpasses a Threshold Value of Matches, then the receiving device is synchronized with the transmitter device. Subsequently, the data is separated from interferences by measuring Voltage Hops of the level of the incoming signal at the start and end points of the "0" and "1" bits in the received signal.

~~A method and apparatus permit information transfer and reception over a communication system that provides the separation of the useful signal from the interference with low BER, independent from it's origin, i.e. whether the interference is orthogonal or non-orthogonal relatively to the useful signal and as a result have a high protectability from the interferences.~~

~~In particular, each subscriber device is assigned a unique address code (a binary code) and a specific code for encoding the information "1" bits. Each period of a clock rate contains a repetition of the Unique Address Code of the subscriber, also referred hereinafter as Unique Address Code (UAC) together with the actual information. The information signal is placed in the time intervals where the Unique Address Code bits~~

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~~have zero value. The Unique Address Code signal and the information signal are both transmitted on the same clock rate and carrier frequency. The Unique Address Code signal is the Pilot Signal.~~

~~The receiver device first attempts to detect the address of the transmitter device by comparing the incoming signal with the receiver's internal Reference Signal. The Number of Continuous Clock Rate Periods (NCCRP) of the Reference Signal, which continuously match exactly with the incoming signal acts as the criteria for address detection. The Reference Signal (RS) is generated in the receiver device. In simplex operation, the Reference Signal (RS) acts as the Address Code of the transmitter device. In duplex operation, the Reference Signal can act as its unique Address Code of the receiving subscriber or as the Address Code of the transmitting subscriber, depending on the party that first initiates the communication. When the measured value of the Number of Continuous Clock Rate Periods (NCCRP) surpasses the Threshold Value of Matches (TVM), then the incoming information is assumed to be for the receiving subscriber and the receiver device is synchronized with the transmitter device of the transmitting subscriber. Synchronization is being performed by the Unique Address Code signal. Subsequently, a channel in the receiver device is opened to receive and process the information. The useful signal is then separated from interferences, and the information enters the receiver's registering device.~~

Claims

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7. A method for transmitting and receiving data with low Bit Error Rate (BER) in ~~the~~ presence of interference between subscriber stations ~~(SS)~~, in a wireless communication, where in the presence a group of more ~~then~~ **than** two **SS subscriber stations**, transmission can take place between any ~~one SS~~ **subscriber station A (SS A)** to another **SS subscriber station B (SS B)** on **a** one to one basis, comprising the steps of:

assigning to each SS its own Unique Address Code (UAC),

and its own Encoded Information Group (EIG) and also assigning to it two frequencies f1 and f2 to transmit and receive data, where the UAC is represented as a binary code, and the EIG is comprised of a sequence of regularly interchanging "1" and "0" bits with different durations;

tuning ~~the a~~ transmitter and receiver of the ~~Subscriber Station A (SS A)~~ **SS A** to the UAC and EIG of the ~~Subscriber Station B (SS B)~~ **SS B** when SS A attempts to connect to SS B;

tuning the SS A's receiver to frequencies f1 and f2, when the SS A attempts to detect the availability of the UAC of the SS B ~~in the~~ **from an** incoming signal, if the UAC of SS B is available, then SS B is considered to be busy;

blocking the SS A's own transmitter and receiver's registering device at the SS A, to disable SS A receiving data from SS B, which is not intended for SS A, and similarly to not transmit data to SS B, when SS B is busy;

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tuning the SS A's transmitter over to f_1 , and the SS A's receiver to f_2 ,
when SS B becomes free as detected by the absence of the SS B's UAC in the
incoming signal;

converting each "1" bit of data to be transmitted to the SS B into a the SS B's
EIG at the SS A's transmitter;

framing and grouping the SS B's UAC and data at the SS A's transmitter, in a
sequence of successive frames, wherein the duration of each frame in
the signal is constant;

modulating the said frames on the frequency f_1 to initiate a wireless.
communication using one of various types of modulation PSK or FSK, or ASK;

transmitting the said modulated frames by SS A's transmitter;

generating at the SS B's receiver an internal Reference Signal (RS) that
corresponds to the SS B's UAC, whereby such RS matches and is a copy of the SS B's
UAC, and therefore counting at the SS B's receiver the Number of Continuous Clock
Rate Periods (NCCRP) that the RS continually matches with the incoming signal;

synchronizing the SS B's receiver and transmitter with the SS A's transmitter,
when the number of NCCRP exceeds the Threshold Value of Matches (TVM) number
where the TVM number is pre-assigned in the SS B's receiver;

measuring at the SS B's receiver the Voltage Hops of the level of the incoming
signal at the starting and ending points of the "0" and "1" bits of the EIG, having
established that the SS B's receiver and the SS A's transmitter are synchronized and

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thereby the SS B's receiver knowing at what instances the data bits are to be found, and accordingly;

recovering at the SS B's receiver the data transmitted by the SS A's transmitter from measured values of Voltage Hops by following the rises and drops that takes place at the start and end points Of all the "0" and "1" bits in the received signal;

converting each "1" bit of data to be transmitted to the SS A into a the SS B's EIG at the SS B's transmitter;

framing and grouping the SS B's UAC and data in a sequence of successive frames, wherein the duration of each frame in the signal is the same as the SS A's frames durations;

modulating the said frames on the frequency f_2 at the SS B's transmitter;

transmitting the said modulated frames by SS B's transmitter.

10. The method for transmitting and receiving data, as claimed in claim 7, further comprising the steps of:

measuring at the SS A's receiver the amount of the time delay of the received UAC signal regarding UAC signal transmitted by SS A;

computing the distance between ~~subscribers stations A and B~~ **SS A and SS B** from the said measured amount of the time delay between UAC signals transmitted and received by SS A.

Allowable Subject Matter

2. Claims 7, 10, and 11 are allowed.

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3. The following is an examiner's statement of reasons for allowance:

The invention of the current application pertains to separating a useful signal from interference that is orthogonal or non-orthogonal. Regarding independent claim 7, the novelty lies in the combination of all the detailed steps performed allowing a subscriber station to transmit data to another subscriber station on a one-to-one basis. The subject matter of the claim recites assigning a transmitting subscriber station and a receiving subscriber station an encoded information group and unique address code, tuning between the subscriber stations, blocking when one of the subscriber stations is busy, converting "1" bits to be transmitted, framing and grouping the data, modulating the data, generating a reference signal at the receiving subscriber station, synchronizing the subscriber stations, measuring voltage hops of the incoming signal at the receiving subscriber station, recovering the data from the incoming signal, and transmitting data back from the receiving subscriber station to the transmitting subscriber station. These features are neither taught nor suggested by the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NAM HUYNH whose telephone number is (571)272-5970. The examiner can normally be reached on 8 a.m.-5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/
Supervisory Patent Examiner, Art Unit 2617

/Nam Huynh/
Examiner, Art Unit 2617